LEWS NEWS

Photo: Kristin Stanford, Northern Illinois University

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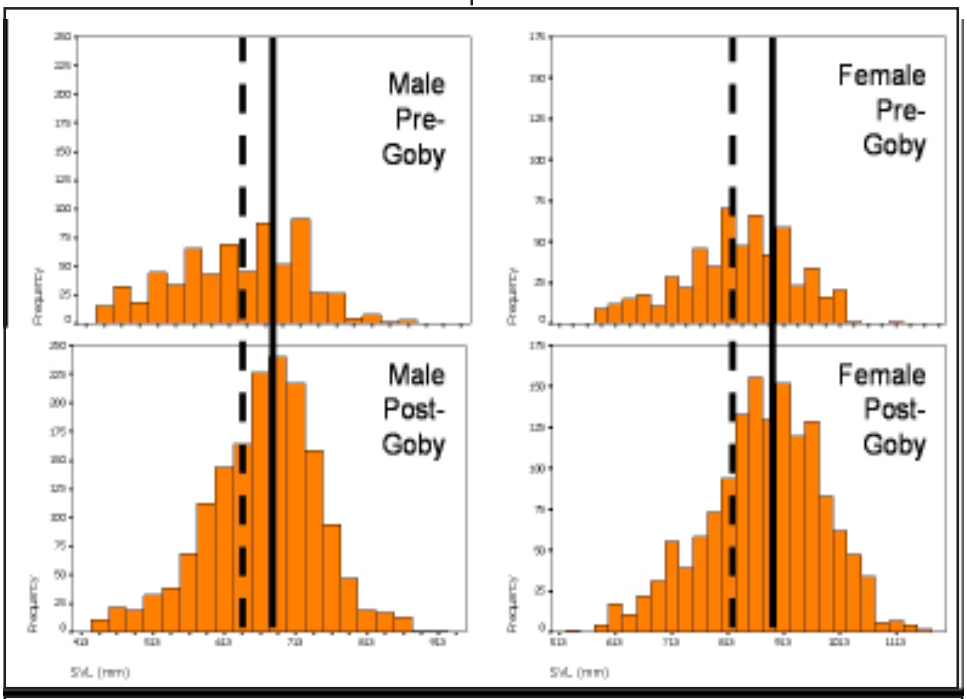
Protecting Lake Erie's Natural Heritage

Gorging on Gobies: Impacts of the Round Goby on the Lake Erie Watersnake

The exotic round goby is a fish that was introduced to the Great Lakes in the early 1990's from ocean-faring ships dumping their ballast water. These fish can spawn 6 times a year with over 5000 eggs each time! Gobies feed on small native fishes and the eggs and fry of sport – fishes such as perch, walleye, and bass. Gobies quickly spread throughout the Great Lakes and were established in Western Lake Erie in 1995. It was soon documented that LEWS were feeding on the introduced goby. In 1996 – 1998, 24% of LEWS diet consisted of gobies. By 2003 gobies were blamed for the decline of many native fishes, which LEWS used to feed on. Dietary analyses in 2003 showed that LEWS were consuming over 92% gobies. Because of this incredible diet shift, we looked at effects the gobies were having on the snakes.

Dr. Richard King has been studying LEWS since 1980, so data was available to look for differences before and after the gobies were introduced. Adults and neonates (snakes less than one year old) both showed an increase in overall body size and growth rate after the introduction of the gobies. These changes were quite large and occurred in both males and females. Because LEWS is a recovering species, these are exciting findings.



Adult LEWS body size is larger after the introduction of round gobies (bottom graphs) than before (top) for both males (right) and females (left). Dashed lines denote average length before gobies were introduced. Solid lines denote average length after gobies were introduced.

(cont.on pg.2)

LEWS Labor and Delivery:
Reproduction in the Lake Erie Watersnake

Unlike many popular pet species of snakes which lay eggs such as Ball Pythons or Corn Snakes, Lake Erie Watersnakes are viviparous, or live-bearing snakes. On average, each adult female LEWS gives birth to 20-30 pencil sized snakes after about four months of pregnancy. Most young snakes are born in the early fall around late September. When born, each young watersnake comes out of the mother in its own individual sack. Within a few minutes, the young snake wiggles its way free and is on its own in the world. As is true for most other snake species, there is no maternal care in Lake Erie Watersnakes. How these young snakes learn critical information such as where to hibernate or what to eat is a mystery.

In order to try and learn more, an intensive effort to determine the survival rate of newborn LEWS began in the fall of 2003. Several pregnant females from the South Bass Island State Park were brought into the lab and kept until they gave birth. Each baby watersnake was weighed, measured and marked with a very small tag under the skin. The babies and mothers were released back at the State Park within a few weeks of birth and allowed to find a place to hibernate on their own. This coming year, there will be an intensive effort to find as many of these marked baby watersnakes as possible. This will allow us to get an estimate of the first year over-winter survivorship, which is likely the most critical time in a snake's life.

Kristin Stanford
Northern Illinois University

A female LEWS gives birth to a baby snake . Photo: Kristin Stanford

Gorging on Gobies (cont. from page 1)

For adult females, an increase in body size allows for more room for a larger litter of babies or for babies that are larger in size when they are born. For neonates, larger size gives them a better chance to survive the long winter that faces them right after they are born in the fall. The increase in growth rate allows the snakes to reach sexual maturity faster so they can breed earlier in life, allowing for more litters over time. All of these should benefit the snake in increasing its population size and preventing it from going extinct.

Julie M. Ray
Northern Illinois University

ATTENTION SHORE LINE PROPERTY OWNERS!

Do you own shoreline property that is great place for Lake Erie Watersnakes? Would you like a break on your income taxes? Then consider a conservation easement for your property. The Lake Erie Islands Chapter of the Black Swamp Conservancy (LEIC-BSC) still has money granted from the Ohio Department of Natural Resources, Division of Wildlife (ODNR-DOW) to use for expenses associated with securing donated easements (ex. survey or appraisal costs) on the Lake Erie Islands. The grant is from the state's Wildlife Diversity program. More money could become available through additional grants. Protecting habitat through easements will help meet the targeted number of protected acres the U. S. Fish and Wildlife Service's Lake Erie Watersnake Recovery Plan have set to have the snake removed from the list of federally threatened species.

A conservation easement is a restriction that a landowner can voluntarily place on their property. It is a legal agreement between a landowner and a land conservancy that permanently protects its conservation values. A building envelope can be reserved for future construction within an easement. An easement can be placed on either a portion of a property (ex. only the shoreline portion), or the entire property. A landowner keeps the title to the property and there is no public access. An easement can be written for each individual landowner. Any donation of a conservation easement is tax deductible. The easement program, sponsored by the ODNR-DOW and LEIC-BSC, is to be used to preserve properties with Lake Erie Watersnake habitat, including either summer habitat along the shoreline or hibernation sites, which may occur further inland. If you have any questions about this program or are interested in participating, please contact us (see contact info below). We are currently working on our first easement which is located on Kelley's Island.

In other LEIC-BSC news, we recently purchased Petersen Woods on Middle Bass Island using a Clean Ohio Conservation Grant with matching funds from the Ohio Chapter of the Nature Conservancy, Ohio Department of Natural Resources, Division of Wildlife and our own Lake Erie Islands Chapter of the Black Swamp Conservancy. The 1.5 acre wet woodland adjacent to Kuehnle State Wildlife Area also features shoreline habitat for the Lake Erie Watersnake. Our LEIC-BSC is continuing to work to save habitat on the Lake Erie islands not only for the Lake Erie Watersnake but other plant and wildlife species as well.

The LEIC-BSC will also sponsor Nature Camp at the Bay again this year July 19-21 to be held on Put-in-Bay. Details are being worked on to offer a Nature Camp at Middle Bass as well. Lake Erie Watersnake programs will be offered during the camp by snake researcher Kristin Stanford. If you would like additional information or would like to register for the camp, please contact us.

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Researcher Kristin Stanford releases captive-born baby LEWS at South Bass Island State Park . The babies were born in captivity, and marked before they were released. Later they will be recaptured to provide an estimate of newborn overwinter survivorship.

Conserving the Ecological Significance of the Lake Erie Islands

Believe it or not, there are more than 30,000 islands in the Great Lakes! The 22 or more islands and rock outcrops in the western Lake Erie basin, although contributing only a small percentage of the total Great Lake island area, contribute significantly to the ecological processes and biodiversity of all Great Lakes islands. By supporting significant habitat for fish, birds, plants, rare species, and other wildlife, the Lake Erie islands promote biological diversity (variety of species within a system) and contribute to the overall quality of Great Lakes islands habitat.

Cataloging Diversity

Islands throughout the world are of ecological significance and interest, particularly as living laboratories of natural selection. The Lake Erie islands are of particular importance due to the significance of their biological diversity. For example, Kelleys and Pelee Islands contain globally rare alvar communities found only in Scandinavia and the Great Lakes ecoregion. Great Lakes-wide, the islands support a higher-than-expected rate of rare and endangered species. We all know that the Lake Erie islands support the LEWS, the only Great Lakes island-endemic (occurring only in this location) species identified to date, but did you know that Kelleys Island houses the Federally threatened Lakeside daisy, and that Middle Bass Island is now home to a nesting pair of bald eagles and their young chick? The islands have traditionally been important habitat for breeding eagles. Eagle nests were noted on Kelleys, South Bass, North Bass, and Rattlesnake islands as early as 1909, but all had disappeared by the 1970's. Thanks to hard work by state and federal officials, volunteers, researchers, and other interested parties, eagles in Ohio are recovering and have reached a modern-day record of 105 nesting pairs, including our Middle Bass pair. This recovery is spreading across the basin, evidenced by nesting eagles on Pelee Island in 1998, after a lapse of about 25 years (Wilds of Pelee, 2003).

Some islands also support ecological functions of high importance such as providing stopover sites for migratory birds or nesting habitat for colonial water birds. Kelleys and the Bass Islands are designated Important Bird Area for Ohio, with 176 species of birds recorded on Kelleys Island in 2003 (http://www.kelleysisland.ws/island_birding/annual_sightings.htm). Pelee Island has recorded more than 100 species of birds that winter on the island and more than 75 species that breed there (Wilds of Pelee, 2003). Islands often provide the only resting places as birds migrate across the Great Lakes, traveling between nesting and wintering grounds. The Erie islands provide critically important stopover sites, necessary for bird migration. Green, Middle, and West Sister Islands provide significant nesting habitat for herons, egrets and gulls, colonial nesting waterbirds that make their homes in the Great Lakes ecosystem.

A U.S. Fish and Wildlife Service biologist holds a baby great egret as it is tagged. The egret was born on West Sister Island, part of the Ottawa National Wildlife Refuge Complex.

Ask anyone where the best fishing in Lake Erie is, and they'll tell you to go to the islands! The submerged reefs, vegetated shallows, coastal wetlands, and rocky nearshore areas provide excellent habitat for fish, which in turn support a multi-million dollar tourism industry in both the U.S. and Canada.

Collectively, the Lake Erie islands provide some of the most unique, rare, and important habitat in the Great Lakes ecosystem. These natural features of the

islands contribute to the cultural, emotional, recreational, economic, and social aspects of island living, and must be conserved if we are to preserve our overall quality of life.

Ensuring Diversity Persists

The significance of diversity in the Lake Erie islands has been documented, but how can we ensure that it persists for the enjoyment of our children, grandchildren, and the seventh generation, as the Keweenaw Bay Indian Community, on the shores of Lake Superior, would ask? Great Lakes island habitat and plant and animal communities are threatened by many actions—commercial, residential, and recreational development, mining, forestry, invasion of non-native species, erosion, climate change, pollution, among others. As these threats continually increase, steps need to be taken soon to address the most significant concerns while protection of biodiversity is still an option.

The U.S. Fish and Wildlife Service is one small part of the Great Lakes islands conservation initiative. Working with a binational collaborative of governments, non-profit organizations, academic institutions, and interested individuals, we are devising a conservation strategy for Great Lakes Islands as a whole. Some of our initiatives include: identifying the most biologically significant islands basin-wide by creating a biological island ranking system; developing an island categorization system, based on geology and landscape position to identify fundamental differences in island types and habitats; developing a system of indicators to measure the ecological health of Great Lakes islands as a whole; and preparing a web-site to help the public, government officials, researchers, visitors and residents understand the significance of Great Lakes islands and identify conservation strategies. We also hope to work collaboratively with island landowners on devising habitat restoration and management plans. Theoretically, these actions will help to protect the biodiversity of the islands, but in reality, to be successful we need the input, knowledge, and experience of island residents such as you! If you are interested in becoming a contributor to our islands conservation initiative, or if you would like to learn more about the activities of our group, contact us!

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Citation: Wilds of Pelee. 2003. Pelee Island-human and natural history; guide to a unique island community; 72 pp.

GOT SNAKES????~ Announcing Nerodio 2004

Yes, folks. Once again, it has come time for the annual Lake Erie watersnake census, A.K.A.~ Nerodio. Myself, as well as many other equally insane people will be spending two weeks scouring the islands for watersnakes. As in the past, we will begin our census at the Bass islands (June 1 – 5) and then move over to Kelleys Island (June 6-11). Following Kelleys Island, we will return to the Bass island area to census the smaller islands like Rattlesnake, Sugar and Ballast. We will be visiting our traditional sites that we go to every year, however, we are always open to suggestions for new areas to get the best population estimate that we can! As part of the recovery criterion outlined in the recovery plan, one of our objectives is to continue to monitor the snake population size. Additionally, we hope that we can show that the population size is currently at the recovery size criterion (about 5500 adult snakes on all 9 islands). I will also be visiting select sites throughout the summer. If you would like us to come and catch snakes on your property, please contact me at 419-285-2341 or e-mail theislandsnakelady@yahoo.com. We thank those residents who have been supportive of our work and encourage others to do so as well!

Kristin Stanford ~ the island snakelady

LEWS Recovery Update!

The Final Recovery Plan for the Lake Erie Watersnake was released last year. The plan identified several goals for achieving recovery, and delisting the snake from the Federal threatened species list. One of the goals was an adult population size of 5,555 snakes or more for 6 or more consecutive years. An updated population estimate based on 2003 snake surveys will soon be available, and data from the upcoming Nerodio 2004 (see article page 5) will aid in further assessing if our population goal has been achieved. A second goal was to protect a total of 4.6 miles of shoreline summer habitat and 126 acres of inland hibernation habitat by conservation easements or management plans. Both public and private lands may be included in the protected habitat, as long as the land will be protected in perpetuity. Private residents interested in helping to recover the snake by donating a conservation easement could also receive significant tax benefits. Check out the article on page 3 for more information. Protected habitat will benefit more than just the snake; a number of species including fish, birds, reptiles, mammals, and insects depend on island shoreline habitat for their survival (see article page 4). Just think, YOU can make a difference in conserving the natural heritage of the Lake Erie islands for future generations!

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